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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,682	10/01/2003	John Frederick Knifton	TH1754 (US)	8213

23632 7590 09/25/2006

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EXAMINER	
LAO, MARIALOUISA	
ART UNIT	**PAPER NUMBER**
1621	

DATE MAILED: 09/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/676,682	KNIFTON ET AL.	
	Examiner	Art Unit	
	MLouisa Lao	1621	

-- Th MAILING DATE of this communication app ars on the cover sheet with the correspondence address --

Period f r Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) *2 and 7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *03/25/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

ACKNOWLEDGMENT OF PAPERS TRANSMITTED TO THE OFFICE

1. The examiner acknowledges receipt of all papers submitted after filing 10/1/2003, which include the Oath 1/9/2004, IDS 3/25/2004 and IDS 3/21/2005.

DETAILED ACTION

2. This application claims benefit of 60/415,676 10/03/2002.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claims 2 and 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims as recited are confusing. The term "adjusted" requires a change. Claim 1 already has a pH of at least about 5.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 6-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Murphy et al. (U.S. Pat. 4,873,378) and Murphy et al. (U.S. Pat. 4,873,379).

MPEP2112 [R-3] Requirements of Rejection Based on Inherency; Burden of Proof

> The express, implicit, and inherent disclosures of a prior art reference may be relied upon in the rejection of claims under 35 U.S.C. 102 or 103. "The inherent teaching of a prior art reference, a question of fact, arises both in the context of anticipation and obviousness." In re Napier, 55 F.3d 610, 613, 34 USPQ2d 1782, 1784 (Fed. Cir. 1995) (affirmed a 35 U.S.C. 103 rejection based in part on inherent disclosure in one of the references). See also In re Grasselli, 713 F.2d 731, 739, 218 USPQ 769, 775 (Fed. Cir. 1983).

Murphy et al. (both patents) in their abstract including col2 lines 25-53 disclose the process for manufacturing 1,3-glycols under the conditions of a hydroformylation reaction.

The instant claims are substantially similar. Instant claim 6 recites heavy stream, which is equivalent to the reactive components' stream in the prior art reference; albeit the reference is silent on the property of viscosity, the properties of a product-by-process reactive stream is inseparable from its properties. The instant claimed reactive heavy components would have been obvious to one having ordinary skill in the art at the time that applicants' invention was made. One skilled in the art would have been motivated to replace the alkali or alkaline metal hydroxides which fall within the alkali metal ion hydroxides taught by Murphy et al. with reasonable expectation that the substitute alkali or alkaline metal hydroxide would be useful as acid neutralizer.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy et al. (U.S. Pat. 4,873,378) and Murphy et al. (U.S. Pat. 4,873,379).

The instant application claims an improvement upon the process for the production of 1,3-propanediol wherein the improvement comprises replacing the sodium hydroxide with a hydroxide selected from the group consisting of ammonium hydroxide, alkali metal hydroxides other than sodium hydroxide, and alkaline earth metal hydroxides to reduce the viscosity of the reactive heavy components.

Scope of the Prior Art

6. Murphy et al. (in both patents' abstracts) disclose a process for manufacturing 1,3-glycols in the presence of a rhodium catalyst and an alkali metal compound.

Ascertaining the difference between prior art and the instant application

7. Although Murphy et al. (U.S. Pat. 4,873,378) teach the process for manufacturing 1,3-glycols; it does not teach a reactive heavy components stream having a viscosity of less than about 100 mm^2/s at 40°C. Yet, in col.6 lines 7-10, Murphy et al. disclose... " the presence of acid, while not causing the reaction to fail, appears to be somewhat deleterious to both the rate of formation and the yield of 1,3-glycol..."; lines 17-21..."metal salts, preferably salts of an alkali metal cation, may be added to the reaction mixture... salt is added it generally increases the rate of the reaction..."; lines 26-27..."

cations include Li+, ...K+, Rb+ and Cs+...."; and lines 29-31..." typical anions include F-, Cl-, Br-, I-, NO_3-, benzoate, acetate, sulfonate, and the like...".

8. In the same light, Murphy et al. (U.S. Pat. 4,873,379) teach the process for manufacturing 1,3-glycols; it does not teach a reactive heavy components stream having a viscosity of less than about 100 mm^2/s at 40°C. Yet, in col.5 lines 1-28, Murphy et al. disclose... "Acids can be added to the reaction mixture... some are less desirable because of their corrosive nature... cations include Li+, ...K+, Rb+ and Cs+....; anions include F-, Cl-, Br-, I-, NO_3-, OH^-, benzoate, acetate, sulfonate, and the like...".

Obviousness

9. The alkali metal cations' and typical anions' role in the manufacture of 1,3-glycols was taught by Murphy et al. (U.S. Pat. 4,873,378). It is obvious to substitute Na^+ with another alkali metal since these are equivalent. Further, Murphy et al. (U.S. Pat. 4,873,379) on col5 line27 teach the use of OH^-. The use of these cations and anions does not exemplify novelty. One of ordinary skill in this art would recognize these classes of compounds as being suitable for reaction.

10. Hence, it is therefore obvious to a person of ordinary skill in the art that other alkali or alkaline metal hydroxides can be used to replace sodium hydroxide in the production process of the instant claimed invention, since these alkali or alkaline metal hydroxides are equivalents known for the same purpose.

11. One having ordinary skills in the art at the time the invention was made would have been motivated to employ the particular instant use of potassium hydroxide or other alkali or alkaline metal hydroxides.

12. Therefore, one of ordinary skill in the art would have reasonably expected that combining the teachings of Murphy et al. (U.S. Pat. 4,873,378) or Murphy et al. (U.S. Pat. 4,873,379) and the fundamental chemical principles of ionic sizes would reduce the effects of the viscosity of the reactive components stream produced in said manner.

13. It has been held that it is *prima facie* case obvious to combine the teachings of the prior art in order to achieve the characteristics of the reactive components stream of the instant application; idea of combining them flows logically from their having been individually taught in prior art. Further, one of ordinary skill in the art would have been motivated to optimize (i.e. reduce) the viscosity of the reactive component stream because the optimization step is considered well in the competence level of an ordinary skilled artisan in the science, involving merely routine skill in the art. It has been held that it is within the skill in the art to select optimal parameters, such as replacement of alkali or alkaline metal hydroxides, in the process in order to achieve a beneficial effect.

Thus the claimed invention as a whole is clearly *prima facie* obvious over the combined teachings of the prior art.

Status of the Claims

Claims 1-10 are pending in the application.

Claims 2 and 7 are objected to under 35 U.S.C. 112, 2nd paragraph.

Claims 6-10 are rejected under 35 U.S.C. 102(b).

Claims 1-10 are rejected under 35 U.S.C. 103(a).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MLouisa Lao whose telephone number is 571-272-9930. The examiner can normally be reached on Mondays to Fridays from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thurman Page, can be reached on 571-272-0602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

THURMAN K. PAGE
SUPERVISORY PATENT EXAMINER
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